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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/065,597

11/01/2002

Lifeng Xu

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08/26/2004

FORD GLOBAL TECHNOLOGIES, LLC.
SUITE 600 - PARKLANE TOWERS EAST
ONE PARKLANE BLVD.
DEARBORN, MI 48126

EXAMINER

TRAN, DIEM T

ART UNIT

PAPER NUMBER

3748

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,597

Applicant(s)

XU ET AL.

Examiner

Diem Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 11-17, 30 and 31 is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 10, 18-20, 22-29, 32-39, 41-44 is/are rejected.
- 7) ☐ Claim(s) 2, 3, 7-9, 21, 28, 29, 33, 34 and 40 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3,4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

-Claim 3 is objected to because of the following informalities:

The dependency of claim 3 should be changed to --claim 2-- since the claim 1 does not disclose a reductant. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 5, 6, 10, 18-20, 22-27, 36, 37, 41-44 are rejected under 35

U.S.C. 102(e) as being anticipated by Beutel et al. (US patent Application Publication 2004/0040287).

Regarding claims 1, 4, 5, 18-20, 36, 37, 42, 43, Beutel discloses a method for controlling an internal combustion engine, the engine being a multi-cylinder engine with a first group of cylinders coupled to an exhaust aftertreatment device and a second group of cylinders being decoupled from the exhaust aftertreatment device, the method comprising: operating the first group of cylinders at a first operating condition; and operating the second group of cylinders at a second operating condition, wherein the first operating condition generates a higher torque than said second operating condition

and said second operating condition provides positive torque (see page 2, part [0017], page 3, parts [0021], [0024], page 10, part [0103]).

Regarding claim 6, Beutel further discloses determining a temperature in the exhaust aftertreatment device prior to performing said operating steps; performing said operating steps when said temperature in the exhaust aftertreatment device is less than a threshold temperature (see page 3, part [0021], lines 1-4).

Regarding claims 10, 22, Beutel further discloses said engine is a diesel engine, said exhaust aftertreatment device is a particulate filter, and said first operating condition causes temperature in said particulate filter to exceed an ignition temperature of particulate matter collected in said particulate filter (see page 11, part [0107]).

Regarding claim 23, Beutel further discloses a lean NO_x catalyst coupled to said exhaust manifold located upstream of said particulate filter (see page 5, part [0065], page 6, part [0065], lines 1-2).

Regarding claims 24, 25, Beutel further discloses that said engine is a lean burn gasoline engine, said exhaust aftertreatment device is a lean NO_x trap, and said first operating condition causes temperature in said lean NO_x trap to exceed a deSO_x temperature being approximately 650 degrees C (see page 11, part [0108]).

Regarding claims 26, 27, Beutel further discloses engine is a lean burn gasoline engine, said exhaust aftertreatment device is a lean NO_x trap, and said first operating conditions causes temperature in said lean NO_x trap to exceed a lower operating temperature of said lean NO_x trap (see page 3, part [0021]).

Regarding claim 41, Beutel further discloses that said exhaust aftertreatment device is a particulate filter, the desired temperature range is a temperature greater than

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an ignition temperature of particulate matter collected in said particulate filter, and said first torque output is greater than a second torque output (see page 11, part [0107], lines 4-7).

Regarding claim 44, Beutel further discloses that said exhaust aftertreatment device is a lean NOx trap, the desired temperature range for causing SOx to desorb from said lean NOx catalyst is a temperature greater than 650°C, the first torque output is greater than the second torque output (see page 11, part [0108]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 32, 35, 38, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beutel et al. (US patent Application Publication 2004/0040287).

Regarding claims 32, 35, Beutel discloses a method for controlling a diesel engine, the engine being a multi-cylinder engine having a first group of cylinders coupled to a lean NOx catalyst, a second group of cylinders not coupled to the lean NOx catalyst, the method comprising: determining a driver demanded torque; operating said first and second groups of cylinders according to a first set of operating conditions when said driver demanded torque is greater than a predetermined torque; and operating said first and second group of cylinders according to a second set of operating conditions when said driver demanded torque is less than said predetermined torque wherein said

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first and second sets of operating conditions are such that a torque provided by said first group of cylinders is different than a torque provided by said second group of cylinders (see page 3, parts [0032, 0034], page 8, part [0077]); however, fails to disclose a reductant injector disposed in an engine exhaust coupled to the first group of cylinders for providing reductant to the lean NOx catalyst. Beutel discloses injecting extra fuel into one bank of cylinders for the specific purpose of providing a reducing environment to regenerate the NOx adsorber (see page 3, parts [0023, 0024]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform post injection into the engine to generate reducing agent as in Beutel, since the examiner notes the equivalence of using additional fuel injection into engine to generate reducing agent into the exhaust gas, and injecting reducing agent directly into the exhaust gas for its use in the exhaust gas treatment art, and the selection of any of these known equivalents would be within the level of ordinary skill in the art.

Regarding claims 38, 39, Beutel discloses all the claimed limitations as discussed in claim 36 above, however, fails to disclose temperature estimation is based on an output from a temperature sensor located proximate to said aftertreatment device or a model of aftertreatment.

It is well known to those with ordinary skill in the art that the exhaust gas temperature can be determined by using a temperature sensor directly or a model based on the engine operating condition. Therefore, such disclosure by Beutel is notoriously well known in the art so as to be proper for official notice.

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Allowable Subject Matter

Claims 11-17, and 30-31 are allowed.

Claims 2, 3, 7-9, 21, 28, 29, 33, 34, and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (703) 308-6073. The examiner can normally be reached on Monday-Friday from 8:30 a.m. - 5:00p.m.

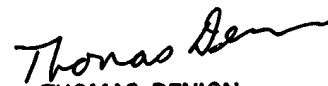
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.



Diem Tran
Patent Examiner
Art unit 3748

DT
August 23, 2004



THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700